

THE
BRODIE
CLUB



ROYAL ONTARIO
MUSEUM OF ZOOLOGY

THE 975th MEETING OF THE BRODIE CLUB

The 975th meeting of The Brodie Club was held on April 15, 2003 in Room 432 of the Ramsay Wright Zoological Laboratories of the University of Toronto

Chairman: Bruce Falls
Secretary: Michael Boyer
Attendance: 19 members and 7 guests
Rosemary Addison, guest of Ed Addison
Sharon Hick and Glen Coady, guests of Fred Bodsworth
Enid Machin, guest of Ann Fowle
Duncan Findlay and Andrea Krueger, guests of Jock McAndrews
Alison Tasker, guest of Ron Tasker

Minutes of the 974th meeting were accepted unanimously.

A copy of the Constitution was included in the previous minutes. Changes of time or venue since then as noted by Falls are allowed for in the original document. Since raising the number of active members to 50 on March 21, 2000, there is plenty of room for new members if suitable candidates can be found.

The membership committee recommends two new members, Glenn Coady and Enid Machin. Their biographies are attached.

The next speaker, on May 20th will be Harry Lumsden, who will speak on his latest trip to Russia. Please note the revised time of 7:30 **pm**.

Following the meeting, John Speakman volunteered to host the June field day at his cottage on Lake Simcoe. It is close to local sewage lagoons (shorebirds, etc.) and the Carden Plain (shrikes, alvar plants etc). Falls suggested members discuss his offer at the next meeting.

Falls noted that Mark Peck of the Royal Ontario Museum notified the Club that the furniture belonging to the Club was to be disposed of by the Museum because it needs the space. Of the items, the bookcase was cited as being of considerable value and might be used to store Club records. Alternatively, it could be sold and the money invested, or it could be donated to the Museum. Sandra Eadie, the club archivist, intimated it could be used, so on a motion by Jock McAndrews, the club voted to keep it. Eadie took possession of the bookcase later that week and moved it into her office. There were no books or papers with the bookcase.

The portrait of Dr. Brodie will be kept by the Museum.

SPEAKER:

Dr. Francine McCarthy was introduced by McAndrews. She is a professor in the Department of Geology, Brock University. Her research interests are in micro-palaeontology especially fossil pollen (Palynology) and fossil Protozoans. The Protozoans include calcareous Foraminifera, which are marine unicellular zooplankton, and Dinoflagellates, which are photosynthetic flagellated phytoplankton.

THE DEEP SEA DRILLING PROJECT:
PLUMBING THE DEPTHS TO DISCOVER EARTH'S DEEPEST SECRETS

Dr. McCarthy presented a brief history of the Deep Sea Drilling Project begun in 1968. The International Consortium has its home base in College Station, Texas. They have had two research vessels since the project began in 1968, a third in process of being built in Japan. The first ship was the *IODP Challenger*, named after *HMS Challenger*? The first oceanographic vessel. The current still active ship is *JOIDES Resolution* named after Captain James Cook's vessel.

This ship with her drilling rig in place rises 61.5 m above the sea surface. She is 143 m long with a 21 m beam. The new ship will be bigger in all respects and even more sophisticated. The two ships have carried out exploratory drilling of the sea bed in all the oceans of the world, and in many, extensively.

Drilling sites are usually dictated by commercial interests so research scientists submit proposals to participate when and where their interests are met.

An interesting series of slides illustrated the lives and activities of the drill operators, crew and visiting scientists who usually call the ship home for about two months, the usual time to complete one leg of a project. The slides revealed the technical sophistication of the ship. It is able to carry out the complex task of locating and even relocating drill strings and extracting cores from the ocean floor several thousand metres below, while accommodating the demands of many research scientists for laboratory space and equipment.

Most of the analytical procedures for the physical, chemical and biological investigations on the extracted cores are available. A slide showing the computer panels servicing the stabilizers that hold the ship steady and in position is an impressive example. Typical drill casings, or "strings" can be extended up to about 9 k.

The samples are collected in plastic casings which are removed from the drill bit and cut into 7.5 m lengths and displayed on deck. They are cut lengthwise, photographed and their physical properties described by the sedimentologists. One half serves as archival material for deposition in various oceanographic institutes throughout the world, while the other half is available to the scientists for further analysis.

The speaker has participated at two sites. The new Jersey Leg on the Continental Shelf off the coast of New Jersey and the Yokohama Guam Leg off the coast of China.

The structure and composition of the Continental Shelf was and is of great interest, formerly driven by gas and oil exploration and more recently for evidence of past geological and climatic events. Its proximity to land was of special interest to the speaker's project as it involved in part, the study of pollen deposited in ocean sediments.

The New Jersey Leg is located in the turbulent waters where the warm, north-east bound Gulf Stream collides with the cold south-bound Labrador Current. Where they meet, deep swirls of warm water are spun off, creating underwater currents which McCarthy showed had been responsible for the erosion of continental sediments exposing the underlying Eocene deposits below. The currents can be demonstrated through remote temperature sensing, the isotherms forming "bull's eye" patterns where present.

The speaker found pollen counts unreliable because of the continual re-suspension, mixing and re-deposition of sediments brought on by the turbulence. She was able to establish a correlation with known cooling cycles when the ratio of pollen to dinoflagellate counts (p/D) were determined, the ratio increasing dramatically during cooling periods.

On the Yokohama Guam Leg, McCarthy had hoped to examine long-distance pollen transfer under marine conditions more stable than on inshore sites, such as the Continental Shelf. Data was difficult to collect because of the drilling regime but an interesting relationship with cooling trends was observed at 0.5, 1.5, 2.5 and 3.5 mya. Here, much enhanced levels of CaCO₃ were indicated in sediments. A carbonate compensation point occurs in the ocean at about the 5,600 m depth where carbonate uptake by photosynthesizing dinoflagellates is balanced by the respiratory activity of the Foraminiferans. Cooling temperatures greatly increase the solubility of CO₂ and the formation of carbonic acid, bringing about the collapse of the Foraminiferans and the dissolution of their skeletons. The insoluble CaCO₃ is deposited on the ocean floor.

This periodic accumulation of CaCO₃ acts as a sink for CO₂ with obvious implications for global warming.

QUESTIONS:

- *Resolution* will be replaced when the new ship is commissioned.
- Depth was about 2k on the New Jersey Leg.
- Stabilizers are not able to withstand the effects of heavy seas.
- Research projects are judged by a committee.
- Drilling periods may be as long as 72 hours.
- The possibility exists that atmospheric levels of CO₂ may be controlled through negative feedback with CaCO₃ deposits.

The speaker was thanked by David Hussell.

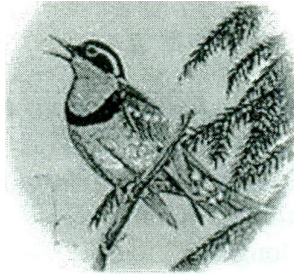
NOTES & OBSERVATIONS:

- Eadie observed a Varied Thrush in Scarborough. This is typically a B.C. species.
- Boswell saw a Sharp-shinned Hawk eating a Mourning Dove.
- Addison observed a Compton Tortoiseshell butterfly in flight
- Falls spotted a Mourning Cloak.
- A member observed an Anglewing.
- McAndrews noted that Rice Lake was still covered with ice and that garter snakes were emerging from an old stone well.
- A Starling with a 2.5 -3 inch beak was noted.

- Marc Johnson was canoeing in Minesing Swamp, west of Barrie, Ont., with a water depth about 6 feet. He saw Pintails, Ring-necked Ducks, Tundra Swans and Sandhill Cranes.
- Jean Iron observed Sharp-tailed Grouse at a lekking site on Manitoulin Island, also a Gyrfalcon and a Great Homed Owl of a northern race with different markings, among them a pale grey facial disc, a Barrow's Goldeneye mating with a Common Goldeneye, lots of Bald Eagles and a male Harrier.

NEXT MEETING:

The next meeting will be held at **7:30 pm** on May 20 in Room 432 of the Ramsay Wright Zoological Laboratories at the University of Toronto. Harry Lumsden will talk on his latest trip to Russia.



Varied Thrush

PROSPECTIVE MEMBERS:

GLENN COADY

Glenn Coady has had a keen interest in natural history since boyhood - a passion that started with an interest in reptiles and amphibians and soon evolved into a life long obsession with all things avian. He has been a very serious and active birder in Ontario for more than 30 years and has visited 12 of Canada's 13 provinces and territories and 47 U.S. states in pursuit of the wonders of the natural world. He has made numerous visits to Central and South America as well.

He has served on the executive of several local natural history organizations including terms as Vice-President of the Ontario Field Ornithologists, Vice President of the Toronto Ornithological Club and Secretary of the Ontario Bird Records Committee. At present, he is a member of both the Toronto Ornithological Club's Toronto Bird Rarities Committee and its Records Committee. He serves as Regional Coordinator for Region 12 (Toronto) on the present Ontario Breeding Bird Atlas. For the past five years he has taught a field birding course at the Royal Ontario Museum. He is a frequent contributor of papers in Ontario Birds and the newsletter of the Toronto Ornithological Club.

He has also long been interested in nature photography and more recently videography. He has an acute interest in the history of ornithology and is also a collector of antiquarian natural history books and documents.

Glenn is presently a member of the Toronto Ornithological Club, the South Peel Naturalists, the Hamilton Naturalists Club, the Ontario Field Ornithologists, the Federation of Ontario Naturalists and the American Birding Association.

Glenn has worked at the Women's College Hospital campus of Sunnybrook & Women's College Health Sciences Centre as Charge Technologist of Nuclear Medicine for the past 18 years.

ENID MACHIN

Why I should like to become a member of The Brodie Club.

Ever since I was young I've been interested in every aspect of the natural world. Everywhere I've been I always identified plants and animals. I have filled in bird lists or marked books that identify fungi, birds, flowers, trees and so on. I took a degree in Zoology at Queen Mary College, London University in England where I met my husband. I majored in Marine Biology so have helped when we went to the Huntsman Marine Laboratories in St. Andrews-by-the-Sea, New Brunswick for U of T courses. Before we arrived in Canada I taught Biology and Zoology to mainly senior high school students. This entailed field courses, each for one week, at centres run for these purposes. I've enjoyed the diversity I've seen especially in Arizona, Friday Harbour (Washington State), the east and west coasts, the National Parks of Alberta and B.c. I've visited New Zealand, Australia and Africa, Tobago and Nassau. I wish I could learn bird voices better but only those of Great Britain in my youth seem to be the ones I can remember best. My other interests are gardening, archaeology, and I am a potter. I use nature's designs also Southwest U.S.A. designs on my pots. I feel that I am well acquainted with the kinds of ideas The Brodie Club is interested in, so I hope you will allow me to become a member.